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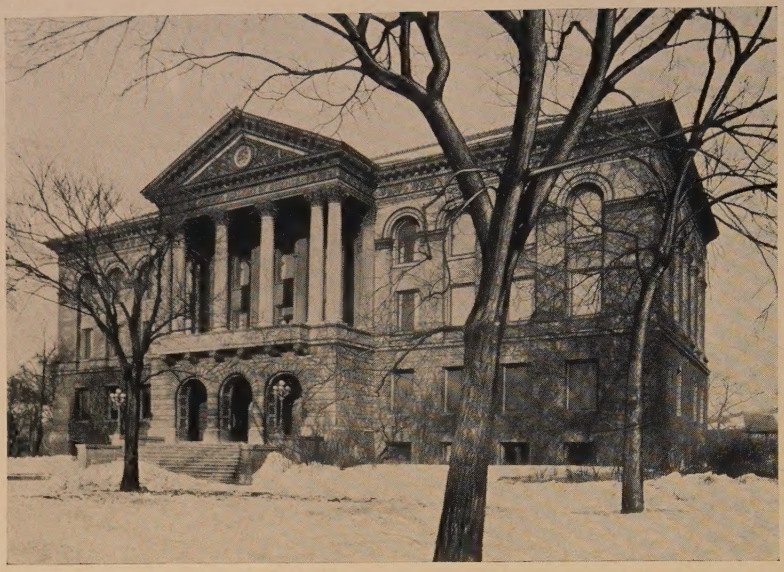

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A beech coppice near Vermillion Lake.

Our Friends the Trees

Orpheus Moyer Schantz

AFTER long months of dormancy, in almost any direction against the sky, are tree outlines showing by their tracery the spring characteristics of the many different species, as if etched by a skilled artist. Soon these skylines are changed to mass formation as the leaves develop and hide the twigs and branches. To the tree student the nude branches in winter and in early spring are definite identification marks, telling by their outlines whether they are to be clothed with light foliage or heavy, and whether the leaves will be simple or compound. Later the identification of the trees by their leaves becomes a much easier task and, when the trees blossom, identification is easier still.

Trees are commonly accepted as an integral part of the landscape without serious consideration of their importance to our welfare and happiness, or of the place they have filled in the lives of our pioneer ancestors. A more delightful or profitable avocation can scarcely be imagined than the development of an intimate acquaintance with the trees.

Unlike the birds that migrate, or the insects and other animals that hibernate, the trees are ever with us. In winter dormant and naked, except for the evergreens and the few that retain their sere leaves; in spring burgeoning into new leaves and blossoms; offering their extended leaves as protection from the hot sun of summer; and in autumn setting the woods afire with gorgeous colors—in all seasons trees have been objects of affection and admiration to both unlettered and civilized peoples. In the works of early writers, in the writings of the ancient Greeks, and in the Old and New Testaments, trees are referred to with respect and veneration, often being credited with supernatural attributes. When our forbears first landed in America they were filled with awe at the marvelous forests that came down to the sea and extended inland indefinitely. While at first these forests seemed dark and forbidding, later they proved to be the source of shelter, food, and material for boats, wagons, implements, household furniture, and utensils.

The writer grew to manhood in Ontario, Canada, in the region between the Niagara and Detroit rivers, bounded on the north by Lake Huron and Georgian Bay and on the south by Lake Erie. Here, where once the magnificent forests were felled and burned to provide farm lands for his Pennsylvania German ancestors, delightful years were spent in these outdoor playgrounds, remnants of the great beech-maple-white pine forest that once covered that portion of Ontario. The forest floor was covered with myriads of flowers in spring; in autumn

butternuts and beechnuts were gathered; and in winter visits were made to the sugar bush to watch the making of maple syrup and sugar, and to partake in the making of the delicious taffy by pouring hot syrup into a clean snow bank. The region was plentifully supplied with dense cedar, arbor vitae, and tamarack swamps through which flowed spring-fed trout streams. In the black mucky soil grew rare lady-slipper orchids, and here was first heard the flute-like ventriloqual song of the wood thrush, not identified until many years later in Illinois.

In the dark tamarack swamps the young trees grew tall and slender making ideal fishing poles when dried, as light and strong as bamboo rods and costing nothing but the effort of gathering them and the long hike across the fields to the swamps. The poles were peeled, dried, and straightened by fastening them with bent nails along the top scantling of the garden fence. Sprouts of willow and basswood furnished whistle material and the inner bark of the slippery elm was chewed for its sweetish mucilagenous content.

In the eighteen-seventies passenger pigeons were still common, their migration flight reaching from horizon to horizon. The ruffed grouse, or partridge, was plentiful, as were the black squirrels, a melanistic form of the gray squirrel common farther south in Ontario. The rivers and smaller creeks teemed with edible fish of many species which in the springtime migrated up stream to spawn in incredible numbers.

While all of these delights of youth were contingent on the woodlands, it was not until many years later in Illinois, in the region about Chicago and the Sand Dunes of Indiana, that the writer became definitely tree conscious. Visits to the Illinois woodlands were first made in the pursuit of ornithology, but after a few years the "ology" of trees—dendrology—usurped bird study, for the trees could almost always be depended on to remain permanently, while the birds, except the summer residents, had the vexing habit of suddenly departing without giving notice. The discovery was made that trees, though not gifted with speech, were fascinating personalities, interesting to know intimately in their attributes and life histories.

Gradually a wide acquaintance among the trees was acquired and tree study became a major avocation. The area in which the tree study was first begun was along the DesPlaines River west of Chicago and its tributary, Salt Creek, from where the Santa Fe railway crossed the DesPlaines to Thatcher's Woods west of River Forest, and from the mouth of Salt Creek along its course to Hinsdale. In this district grow most of the trees native to the Chicago Region. It is also one of the finest localities in which to observe bird migration. Those trees with which the writer was familiar in Ontario were, of course, the first ones identified; then other trees, such as the hackberry, red mulberry, and Kentucky coffee tree, were discovered. The different species of oak

Soft maples with their feet in the water.

were the last to be studied because of the erroneous impression that they might be intricately difficult. The writer, being a novice, derived pleasure and satisfaction as each new tree was discovered and the personal differences distinguishing each species were solved.

That even in the same species trees vary definitely, in habit of growth, reaction to soil, moisture, and environment; that they are male and female, but that some trees bear both male and female flowers; that in most instances they grow from tiny seeds to great height and size, attain maturity, perpetuate their kind, and die of old age even as we do, should be common knowledge to everyone. Their ability to assimilate food from earth and air, the functions of their roots and leaves, their annual growth rings, the cellular structure of the wood, and the formation through the summer months of the buds containing blossoms and first leaves of the next year closely packed and sealed, all are attributes of fascinating interest which may be learned from books and close observation. In the identification of tree families the simplest procedure involves leaves, blossoms, and fruits. These are more conspicuous than are the differences in color and structure of bark, the epidermis of the tree. Leaf forms usually are so similar that relationships may be easily established, as in the case of the elms, ashes, and maples. The boxelder, cottonwoods and poplars, willows, and most of the oaks are more difficult to recognize on the basis of leaf

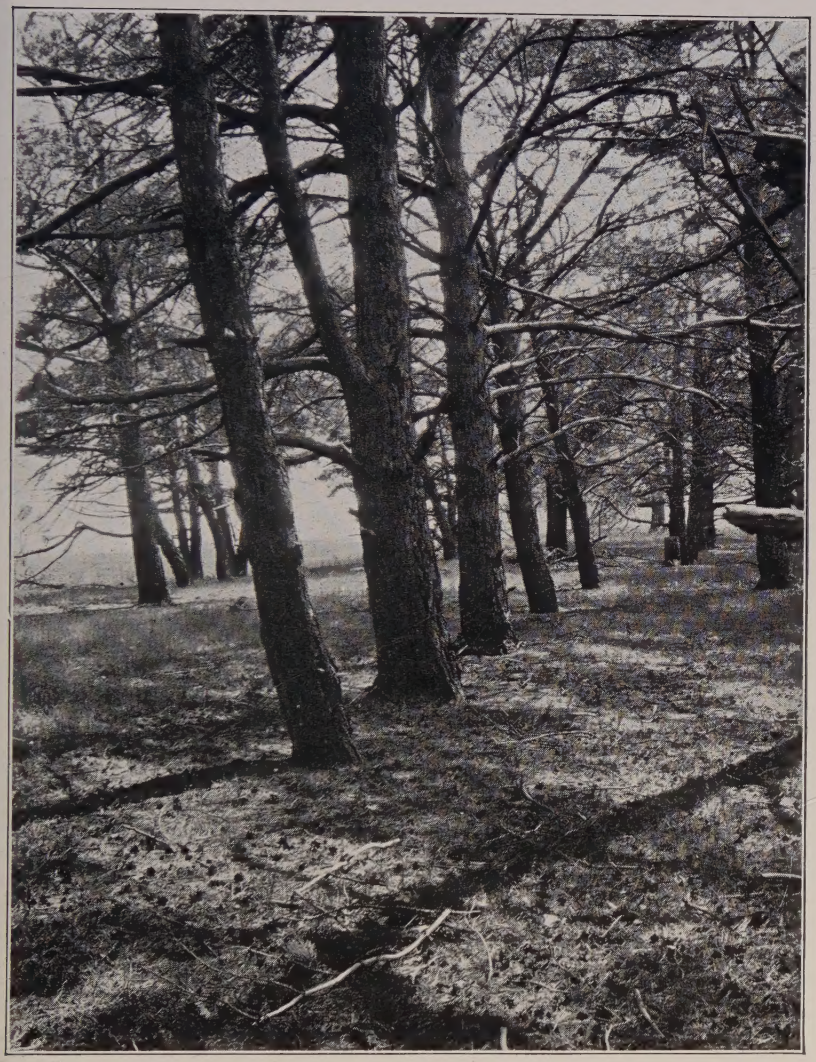
form. In the oak family, however, are several striking exceptions for the shingle, laurel, and willow oaks bear leaves distinctly different from the others, as do the members of the chestnut oak group. As all oaks bear acorns, the species may be positively determined, regardless of the idiosyncrasies of their leaf forms, when the trees are in fruit.

When bark patterns and color are considered, family relationships are frequently not so evident. All members of the ash tribe bear similar compound leaves, but the beautifully fretted bard of the white ash does not resemble either the lighter gray, flaky bark of the black ash, or the downward sloping, scaly bark of the blue ash. Soft, hard, and red maples have similarly outlined leaves, decidedly maple-like, but quite different barks. The black oak group and the white oak group also differ from each other, the latter having rough bark from root to top while the black oak family displays rough bark on the lower trunks and plates of smooth bark on the upper portions of the trunks and on the branches. Further family differences appear among the hickories, the shellbark having shaggy, untidy bark in long strips, and other hickories tight smoother bark. Outstanding bark characteristics are the exfoliating bark of the sycamore that each year sheds its skin and grows a new one, the warty bark of the hackberry, the oddly overlapping bark of the Kentucky coffee tree, the deeply furrowed, brown-tinged bark of large walnut trees, and the papery bark of the different birches.

As the study of trees progressed from year to year a mental record was kept of outstanding trees and of rare species discovered. Gradually tree acquaintance was extended from Colorado to New York and from Minnesota to the Gulf of Mexico. Knowledge was acquired of where to look for certain trees on the basis of soil, geography, and environment and how to understand something of the reaction of trees to their surroundings.

Many odd close companionships were discovered among unrelated species, erroneously classed as natural grafts. Although these trees grew tightly against each other they did not actually fuse. Examples of this odd embracing are fairly common, having been found as follows: burr oak—basswood, white oak—black cherry, hard maple—white ash, hard maple—white pine; and, in the south, post oak—yellow pine, and white elm—holly. Trees of the same species readily fuse either with other trees of their kind, or with their own limbs grafted through abrasion. Such natural grafts have been noted in hawthorns, hackberry, hard maple, burr oak, white elm, and blue beech. One large blue beech had many fusions of abraded branches.

The ability of forest trees to adapt themselves to exceptional conditions is uncanny. On steep, rocky slopes where heavy rains frequently wash the soil from beneath their roots, trees may be found perched on



Acclimatized pines where the crossbills come to feed.

rocks, reaching out in all directions to wrap roots, octopus-like, around the obstacles, and to penetrate them into crevices and hold the tree rigid. With great age many trees become hollow, outwardly appearing still vigorous although the inside of the trunk has disappeared through decay. This is due to the fact that the growth of the tree is entirely on the outside circumference next to the bark, the inner portion having long since become inactive. Trees growing in wet soil often send out

conspicuously buttressed roots as anchors; it is said that from this growth was derived the suggestion for the flying buttresses which characterized the feudal castles of Europe.

Strong as trees are, and impervious as their wood may appear, they have many natural enemies that bore into the wood, girdle the smaller branches, and tunnel into the trunks. The carpenter ants make labyrinths of connecting chambers, and the engraver beetles operate under the bark to leave refuse-filled passages resembling hieroglyphics. Oaks are the prey of numbers of species of gall flies that make the deformities called oak galls. The hackberry is subject to the action of a fungus that causes the odd witches' brooms which disfigure the twig ends. Larvae of moths and butterflies often denude entire trees of their leaves, as does the large brown beetle commonly called the June bug. More insidious enemies are the many species of fungi that, once started, do not stop until the tree is killed.

The effect of climate on the growth of trees is definitely indicated by the width of the annual growth rings. When the weather is cool and moist the growth is slow and the texture of the resultant wood is dense. In spite of the general replacement of wood as a building material, for certain purposes wood is better than steel because it is not affected by cold or heat. Its tensile strength, durability in contact with the soil, and beauty of grain combine to popularize wood for building, for the interior finishing of structures, and for fine furniture.

Although most of the great forests of eastern states have succumbed to the demand for lumber, trees are still being naturally replaced through the activities of wind, water, birds, and squirrels. Wind-carried seeds are the winged seeds of the ashes, basswoods, elms, hard and soft maples, catalpas, and the tree of heaven, an interloper of questionable value. Also carried by the wind, in parachutes of cotton, are the seeds of the poplars, cottonwoods, and willows. Hard-coated seeds are distributed by birds, and many light seeds are transported long distances by streams. Squirrels have aided in reforesting by burying nuts and subsequently forgetting the location of the burial.

In the vicinity of Chicago and throughout northern Illinois the white or American elm is undoubtedly the most satisfactory and most popular shade and street tree. Many of the older towns and cities have used hard maples, and other communities have used both elms and maples. Princeton, known as the home of the abolitionist Owen Lovejoy, has many magnificent elm trees, and Jacksonville, farther south, prides itself on having more large elms than any other city in Illinois. Galesburg, the site of Knox College, not only has many imposing elm trees, but has numbers of the cucumber tree, a hardy native magnolia, gingko, and Kentucky coffee trees, and many huge soft maples. The

Stately white pines in a State Park.

Lombard elm of Galena is one of the best known specimens of elm trees in the state.

The widespread interest in tree planting and conservation is evidenced in the great variety of trees planted in almost all better class suburban communities. Many of the plantings may not have been very practical, but the general effect is beneficial and compensates for the error of planting trees whose only value is that of quick growth. A tree census taken in one of the larger suburbs of Chicago in the summer of 1932 totalled fifty-seven species where less than fifty years ago were only a few cottonwoods and silver poplars. Many large cottonwoods have been condemned and removed because their prolific root systems have caused damage by insinuating themselves into sewers. Most of the native trees attain their greatest size in the Ohio River valley, while one of the largest trees ever reported in the Mississippi valley was a giant cottonwood standing in an open meadow west of Evanston near Grosse Point. This tree had a base circumference of fifty-one feet. Inside its hollow base an eight foot square could be measured, and through the tent-shaped opening into the hollow trunk a man could ride horseback. The tree was destroyed by vandals who started a fire in its base.

Trees during their lives exercise a beneficent influence in the lives of men, birds, and other animals by furnishing food and shelter from

the elements, and by inspiring artists and writers through their beauty. When they die naturally they return to the earth much that they took from it in the form of rich forest soil. The following quotation, passed on to the writer by an English gardener, conveys a beautiful concept of tree life:

> Here is a strange group of intermediate things that goes through life without consciousness and into death without bitterness.

Tree study can be started at any time for one is never too old or too tired to be interested in the trees. Ralph Waldo Emerson said:

> Whenever we plant a tree we are doing what we can to make our planet a more wholesome and happier dwelling place for those who come after us, if not for ourselves.

After the student has become thoroughly imbued with a desire to know still more about trees, the study of buds and leaf scars will offer a further engrossing pursuit that will require the use of a hand lens. Then will be opened for his inspection an entirely novel provision for the protection and reproduction of the tree by the encasing of its embryo leaves and blossoms in hermetically sealed wrappings, impervious to the heat or cold of ordinary climatic conditions and ready to burst forth when springtime brings the mysterious urge for awakening. Leaf scars show by the language of signatures the connection between the body of the tree and its leaves. The scars also furnish a definite means of identification and an intimate knowledge of the marvelous character of tree structure which may be studied during the dormant period of the existence of the tree.

The best time to begin tree study? The sooner the better. Begin "right now" when summer is here with its magnificent display. The span of life is too short to do more than start this intriguing avocation.

Tree books are legion, many states having their own publications. Among those particularly valuable are: *Manual of Trees of North America,* by C. S. Sargent (Houghton Mifflin, New York); *Native and Naturalized Trees of Illinois,* by Miller and Tehon (Illinois Natural History Survey, Urbana); *Trees of Indiana,* by C. C. Deam (Indiana Department of Conservation, Indianapolis); *Trees of Michigan,* by C. H. Otis (University of Michigan Press, Ann Arbor). General botanies that include trees are Gray's Manual (7th edition) and Britton and Brown's *Flora of the Northern States and Canada.* Efficient aids to bud and leaf study are: *Winter Botany,* by William Trelease, *Twig Key of the Deciduous Woody Plants of Eastern North America,* by William M. Harlow, and *Winter Key to Trees of the Chicago Region,* by V. O. Graham in Pepoon's *An Annotated Flora of the Chicago Area* (Chicago Academy of Sciences).

William I. Lyon

1874-1938

AGE weary we see with nostalgic pleasure the enthusiasm and delight of the young. To the wonder and curiosity of children, birds are amazing creatures. Now and then we meet a mature—sometimes venerable—person in whom, undiminished, the child's amazement has survived. With each new experience in the world of birds he is thrilled with a radiant enthusiasm and it is so with him that other mortals sometimes shake the head, as if such a one might be accounted "bird-touched." Commonly he is not an ornithologist, in the sense of being technically trained. With him it is rather the constant thrill of pleasure in having birds about his home and in seeking them everywhere. When he dies it is as if one very young had gone untimely to his end.

Not the years of William Isaac Lyon—our genial friend, our old companion, who had passed his grand climacteric—not these do we remember; but we do recall—Ah, how well indeed!—that in his youth he received an inspiration, carried it with him, and never let it grow old.

Will Lyon's Waukegan home lay at the edge of a region remarkably rich in bird life. The long reach of lake shore, the low dunes with their plantations of pine with marshes all between, the winding Dead River, the stretches of sandy prairie, in his boyhood were filled with nameless winged wonders. Like most boys he kept pets—rabbits, guinea-pigs, bantam fowl and, it may be supposed, such creatures as woodchucks, squirrels, turtles and snakes. Such was his interest in these that he became an exhibitor and later a judge of "pet stock" at shows held in Chicago and other cities. When bird-banding came to his attention it presented the idea of handling and identifying and putting his seal upon the soft, warm, feathered wild kin of his own domestic fondlings.

In considering our friend's work as a bird-bander we remember especially his persistence and his energy. Were there gull colonies where banding might be done on a large scale, he set off and found them. Were brown creepers hard to trap, he developed a trap. Was there dearth of returns from Iberian-America, editors were besought,

consular offices approached, until many newspapers, printed in Spanish or in Portuguese, had stories about Will Lyon's birds.

The "homing instinct" of the cowbird became the chief subject of his investigations in late years. He wrote last May, "I wait impatiently the return of one of those cowbirds shipped to Vancouver." It was while he was telling friends in Waukegan of a shipment of cowbirds received from Winnipeg, which he planned to release that day, that he met the last high moment.

Naturalists of Chicago, I give you the memory of Will Lyon.

—Edward R. Ford.

Amateur Herpetologists' Meetings

THE first meeting of the amateur herpetologists' group on May 26th brought out thirty-five people in spite of the constant rain during the evening. The group's enthusiasm was such that they stayed two hours after the formal program—until 11:30—exchanging ideas with each other and questioning the various professional herpetologists. The speakers of the evening were Dr. Howard K. Gloyd and Walter L. Necker of the Academy, Karl P. Schmidt of the Field Museum, E. G. J. Falk of the Lincoln Park Reptile House, A. S. Windsor, General Biological Supply House, and Emil Rokosky of the Brookfield Zoo.

The success of the first gathering brought immediate requests for continued meetings, and, on June 23rd, Karl P. Schmidt spoke on *Adaptive Radiation in Snakes* to an audience of over sixty. Mr. Schmidt traced the evolution of snakes from the primitive boids to the pit vipers, pointing out the smaller and popularly little-known families which have evolved from a boid stock and specialized, mostly to burrowing forms, to such an extent that they have not increased and continued to evolve new forms. He showed the interesting similarity of the larger families of snakes—boids, colubrids, vipers, etc.—in their endeavor to adapt themselves to all habitats, each group having representatives that are especially well fitted for arboreal, subterranean, or aquatic life, and for fast moving along the ground. This same phenomenon of a group tending to fill all available habitats is, of course, well known in birds and mammals as groups, but the fact that it is also true of individual snake families is not generally known. The enthusiasm again kept most of the members at the Academy until late in the evening, questioning the speaker and exchanging experiences with each other.

The next meeting is planned for the middle of September and promises to be of great interest to those desiring permanent organization of such a group within the Academy.

Hunting for Nests of the Harris's Sparrow

A. Marguerite Baumgartner

THERE is a thrill in the discovery of a bird's nest however abundant the species and however often it may have been our experience. But when the discovery is attended by the realization that not more than a dozen and a half of its kind have ever been found, one senses a kinship with Audubon and Wilson and those other early enthusiasts to whom the bird life of all America was theirs for the discovery.

The age-old secret of the nest and eggs of the Harris's sparrow was divulged by Dr. George M. Sutton, a member of the Cornell-Carnegie expedition at Churchill, Manitoba, in 1931. This bird nests only in the stunted spruce woods of the far north between the west coast of Hudson Bay and the Rocky Mountains, and until the new Hudson Bay railway was completed no one had been able to reach the breeding grounds early enough in the year to observe the nest and eggs. The story of his discovery Dr. Sutton has told in his typically vivacious and colorful manner in *Birds in the Wilderness* [Macmillan, 1936], a book in which every bird-lover will delight.

In 1933 it was my privilege to go Harris's sparrow hunting with the man who had found more than half of the nests of this species on record—Mr. Arthur C. Twomey, then of the University of Alberta. Mr. Twomey had been at Churchill for three seasons and had collected a total of six or eight nests. We started out from town at seven on the morning of June 22, armed to the teeth with collecting and photographing paraphernalia and bundled to the ears with winter underwear, flannel shirts, hip boots and sheepskin jackets for, although we might have to shed by mid-day, the morning breezes were chilly and the little pools through which we must wade were still filmed with ice.

"The Dinky," a narrow-gauge train of gravel cars which took the construction crews to the reservoir project every morning, gave us a ride for the first four miles across hummocky tundra and wet, grassy muskeg, a welcome lift and the only kind of hitch-hiking this roadless country affords. From the end of the rail we hiked another two miles to the timberline where our search for Harris's sparrows could begin. Here among the shaggy, stunted spruces and tamaracks, scattered trees twenty to thirty feet in height, with shallow roots and many fallen, lichen-bearded branches, we heard the plaintive sweet whistle of this bird: three notes, the last two on the same key a few tones above the first. The song epitomized the simplicity and unspoiled beauty of this wild country.

We hunted all day. We watched dozens of the black-faced males whistling their pensive melody from the tops of the little spruces. Occasionally, we caught sight of a female, duller in color and more shy than her mate, but invariably she flitted out of sight before we could trace her to her nest. Undoubtedly there were dozens of others sitting quietly in their little hollows but we did not happen quite close enough to flush them. The Harris's sparrow is not a rare bird, yet there will probably never be many sets of eggs in the collections of the world. It takes more than a railroad to bring them to museum trays; it takes time and patience, tireless energy and days of tramping, and a canny understanding of bird behavior which only long experience can give.

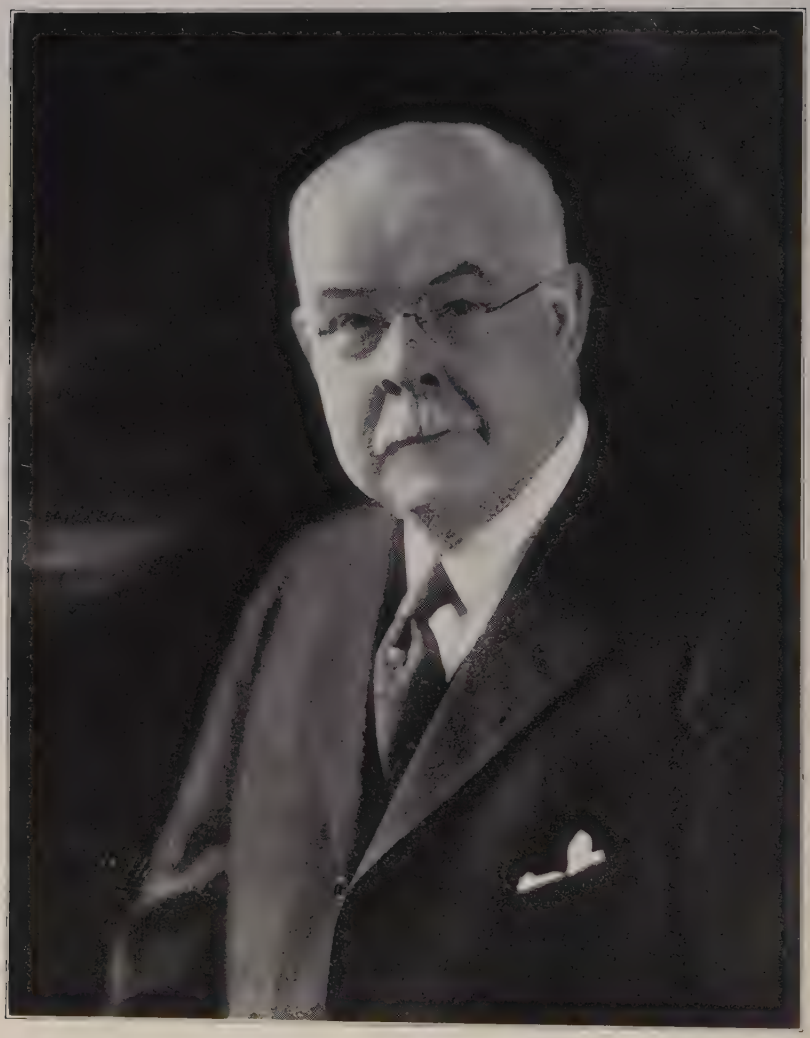
We found our first nest at five o'clock. Mr. Twomey had been watching a little female for over half an hour while she nibbled disinterestedly at grass seeds and birch buds. Eventually she flew to a hummock of reindeer moss and disappeared behind a sprig of Labrador tea. There was the nest, deep in the spongy carpet of moss, a round and compact cradle for the four sky-blue eggs with their dark fleckings. The bird flitted off nervously and remained out of sight during the remainder of our stay. These are wary and shy birds which, I am told, will desert their nests easily, and consequently, photography was difficult.

After a sketchy supper of left-over lunch (we had planned to be

Mr. Twomey on the nesting ground of the Harris's sparrow.

home long before this) and a billy-can of black tea, brewed in true Canadian fashion over a wood fire, we resumed our search. The second nest was found at nine, and we decided to call it a day. Plodding back across the eight hummocky miles to town, alternately slopping through the grassy muskeg with my size eight boots clinging an inch behind me in the ooze of the bottom, and skipping to keep up with the six-foot hulk of my companion, was not an experience which I would purposefully repeat.

Yet even this drudgery was not without compensation for, as we came out of the woods at 10:30, the sun was just setting behind the ledge of rocks that lines the shore of Hudson Bay, and in the distance the grain elevator stood white and luminous and irrelevant on this arctic landscape, against the rosy glow of the midnight sun.



Ruthven Deane, 1851-1934.

Ruthven Deane: An Autobiography

NOTE: This autobiography was prepared for the Kennicott Club of which Mr. Deane was the first president, and was read at a meeting of that organization on March 1, 1932. For a more extensive account of Mr. Deane's life see Osgood, Auk, vol. 52, 1935, p. 1-14.

MY FATHER, Charles Deane, was born in Biddeford, Maine, November 10, 1813, and died in Cambridge, Massachusetts, in 1889, in his 76th year. He attended public schools in Biddeford and Kennebunkport, and worked in the general stores. At the age of 19 he went to Boston and found a position as salesman with the firm of Waterston, Pray & Co., dry goods commission merchants. In 1840 he was admitted as a partner and the following year was married to Mr. Waterston's eldest daughter. In his younger days he developed a marked interest in early New England history and wrote occasional articles for the Boston papers. These articles were noticed by members of the Massachusetts Historical Society and he was later elected to membership. He retired from active business in 1864, and the remainder of his days he was active in his historical pursuits. For many years he acted as Recording Secretary and Vice-President of the Historical Society, and at his death had accumulated a library of some ten thousand volumes. My mother was born in 1819 and died in 1897. Of the six children born to my parents, I was next to the youngest. I was born in Cambridgeport, Massachusetts, August 20, 1851.

My early education was derived from the grammar school and four private schools. I preferred a business career rather than a college education, though in later life I regretted my early decision. My first venture in business was with the sugar and molasses importing house of Dana Brothers in Boston. My principal duties were taking buyers of the wholesale grocery houses to the several wharves, where cargoes of molasses from Cuba and the West Indies were landed, and drawing samples for their inspection; also selling refined sugars to the trade. After three years I left this business and was unoccupied for a year, though most of that time was devoted to my ornithological hobbies. The great conflagration of 1872 that wiped out most of Boston's business section, and caused a collapse in all of the large insurance companies of the city, was the means of giving me my second occupation. The Fireman's Insurance Co., one of the oldest, of which my father was a director, was re-organized, and in need of extra assistance. I entered their employ thinking at the time it would be only temporary. However, I remained there eight years, and only resigned to come to Chicago in April, 1880, to enter the wholesale grocery firm of Deane Brothers & Lincoln. This business we conducted for twenty-three

years, and then sold out to one of the large houses in that business, which is still active. In 1885 I married Martha R. Towner, daughter of Henry A. Towner, a prominent commission merchant on the Chicago Board of Trade. Our two sons born in 1887 and 1890, were both graduated from Harvard University, and both served in the world war.

My interest in the study of birds began at an early date and was spurred on by my intimate acquaintance and nearby neighbor William Brewster who, at the time of his death in 1919, was one of our leading ornithologists. We were only sixteen days apart in age and part of the time attended the same school. Outside of schools hours we were constantly wandering over the country collecting birds, nests and eggs. In the fall we indulged in some shooting of gamebirds. Brewster always kept good dogs and we had our boats on Fresh Pond, a favorite locality for several species of ducks, more especially the ruddy duck, locally called "dumb-bird." From 1868 to 1871 we were rarely absent during the fall flight, reaching the pond (a mile walk) before sunrise, and returning in time for school.

In an old diary I find many abbreviated entries made for want of time or inclination, "School in the A. M., stuffed in the P. M." Like many boys starting a collection, I mounted my birds for a good while before I made up any skins. My first attempt at mounting was a house wren. I can see it now looking like a feathered clothes pin. My mottled owl had so much putty in the eyesockets and head that it was always top heavy and kept falling over on other birds, and the snowy owl, shot November 17, 1872, on the Longfellow marshes in Cambridge, would give no one any idea of a bird of wisdom. This specimen is still standing on top of a bookcase in my old home where it has done guard duty for sixty years.

Having acquired a severe case of ivy poisoning while collecting in hot weather my doctor prescribed for me a short trip by sea. In company with a friend who was in sympathy with my tastes, I took a steamer for Halifax, Nova Scotia, in August, 1868, with letters of introduction which gave us entrée to that interesting city under the most pleasant auspices. We went across Nova Scotia from Halifax to Digby by stage, there being no railroad at that date. I was particularly glad to meet the veteran naturalist, Andrew Downs, who founded the first zoological garden in America. He was born in New Jersey in 1811, and remembered seeing Audubon when on one of his trips. A noted taxidermist, he claimed to have mounted about 800 moose heads, and supplied King Victor Emmanuel with thousands of dollars worth of animals and specimens. He published his first paper on "Land Birds of Nova Scotia" in 1864 and another catalog in 1878. In a letter written October 9th, 1878, which I received from him regarding a specimen of the man o'war bird, which had been shot off Halifax Harbor

October 10, 1876 (see Nuttall Bulletin Vol. 4) he gives his personal feelings towards this bird. "The wings and feet look as if they were intended to settle on the River Styx or ride triumphant on the storms of Hell. The color of the throat being sulphur carries out this idea, black with treason, sacrilege and crime. Ye imp of Hell! It has this demoniacal look to me." Downs died at Halifax August 26, 1872.

In 1868 Brewster, Daniel C. French (later the noted sculptor) and myself had a successful shoot on shore birds at Rye Beach, New Hampshire. We were then lads of seventeen or eighteen. With the abundance of shore birds in those days it was no trick to pick up two or three dozen yellow-legs of both species in a morning. The character of the woods a mile back from the shore was excellent for ruffed grouse and an occasional woodcock.

Much of my collecting and general field work was done in the seventies before coming to Chicago. After the organization of the Nuttall Ornithological Club in 1873, and the publication of the Club Bulletin in 1876, I was a busy body. I was secretary of the Club from 1873 to 1876, corresponding secretary from 1876 to 1880, and also treasurer from 1877 to 1880. As the Club treasury was small, we endeavored to float the bulletins from the amounts received from subscriptions, and it was supposed to be the secretary's job to raise those subscriptions. I have often wondered how many hours each day and evening, I spent in writing all over the country, and sending number 1, volume 1 for bait, besides personal solicitation. By writing to many of the young men with whom I had made exchanges I obtained lists of their correspondents to whom I might apply, but it took constant work, for the annual subscription at that time was only a dollar. However, we paid our bills, though I often had a little borrowing account with my father until the next issue was ready.

During the seventies I made various collecting and fishing trips mostly through Maine. On one trip through the Provinces at a point near Digby, Nova Scotia, I came near having serious trouble when endeavoring to collect some terns on a sandbar quite a distance from shore. Not being posted on the rapid movements of the tide in the Bay of Fundy, I shortly found myself being cut off, and no man or boat was in sight. No one ever ran a base quicker than I in my endeavor to reach shore, but I made it, wet and generally exhausted. I made two trips through the Moosehead Lake region in Maine, on one of which we got through without disaster, with the exception of one canoe turning turtle in rough water occasioning the loss of my gun and fishing tackle. On this trip we climbed Mt. Katahdin, the highest mountain in Maine, 5200 ft., going up over the slide from the west branch of the Penobscot River. This was in September, and we found enough snow on the top to make the scrambling difficult and disagreeable. In 1874

in company with Brewster and Ernest Ingersoll we made a two weeks trip to Petrolium, West Virginia. This was a small deserted oil town, and the only accommodations we had were two rooms overhead in the railroad station and a small workshop in the rear to prepare our specimens. A good many of the species which we collected I had never seen in life, which made this trip doubly interesting, though we were much handicapped with unusual wet weather. After our return Brewster published a list of the birds seen and collected, 100 species (see Annals N. Y. Lyceum of Natural History, June, 1875).

While living in Cambridge I enlisted in the first Corps of Cadets known as the Governor's Guard, in that famous Centennial year 1876. Whenever a Massachusetts Governor goes on Military or State occasions, the Corps must act as his bodyguard. We acted as escort to the Philadelphia Centennial Fair. The crowds were so large the only barracks we could have assigned to us was a church and my cot was up in the chancel. Returning we were met at the New York station by the famous New York seventh regiment and escorted across the city. I shall never forget the ovation we received marching up Fifth Avenue. That same year we attended the celebration of the battle of Bunker Hill, the battle of Bennington, Vermont, and the battles of Concord and Lexington and other occasions of minor importance.

In 1878, Henry A. Purdie, my life long friend and later a Fellow of the American Ornithologists' Union, accompanied me to Houlton, Maine, near the New Brunswick eastern border. Here we found a most interesting region and collected specimens for two weeks. We were fortunate in at last obtaining a genuine set of eggs of the yellow-bellied flycatcher (Nuttall Bulletin volume 3). We also took the nest and eggs of the winter wren. A short drive took us to the actual boundary between Maine and New Brunswick where we found a tavern built half in the State and half in the Province. On the Province side of the house was installed the bar room and some specimens of the Genus Volstedi were collected. In 1870, Brewster and I made three trips to the Umbago Lakes in Maine, making our headquarters at Upton and doing most of our collecting in that region. One year we engaged the services of Chas. J. Maynard as taxidermist, thus enabling us to spend more time in the fields and woods, principally woods, collecting specimens. It was a wonderful place for warblers.

In 1883 I visited Santa Barbara, California, on a rather hurried trip. At that time there was no railroad built to that town and I had to reach it by steamer from San Francisco. Returning to San Francisco, I met the late Walter Bryant, one of the founders of the Cooper Club, visited his home across the bay, and saw his collection. I also visited the old California Academy of Sciences which was afterwards destroyed by fire. One evening in charge of a lieutenant of police I

made the rounds of Chinatown, taking in everything from behind-the-scenes in the theater to the opium dens underground and indulged in birds-nest soup in one of the Chinese private clubs. My second visit to California was in 1925 and of a different type. I started in at Los Angeles and Pasadena, meeting a number of the ornithologists whom I had previously known only by name and correspondence, then went to Haywood where I visited my son and his family. Haywood was the home of that pioneer California ornithologist, Dr. J. G. Cooper, and I was shown the house in which he lived and did his writing. I was fortunate in being able to attend a meeting of the Cooper Club held at the Museum of Vertebrate Zoology at Berkeley and there I met many new faces and heard papers of much interest.

On August 1, 1883, an invitation was sent to a number of ornithologists to meet at the American Museum in New York on September 26. The result of this meeting was the founding of the American Ornithologists' Union. Of the twenty-three who were elected founders at this meeting, eighteen now are dead; twenty-four were elected as active members (now styled Fellows) of which seventeen are now dead; twenty-one foreign members were elected, all of whom are now dead, and twenty foreign corresponding members were elected and of this class Percy Evans Freke of Folkstown, England, is the only surviving member [1932]. Being in Chicago at that time, and chained to a desk, I was unable to be present at this meeting, but was elected a Fellow and in 1898 was made a member of the Council.

In December, 1894, I made a trip with a party made up largely of members of the Chicago Board of Trade to visit a large cotton exhibition at Waco, Texas. We had our own train and received every hospitality at Waco as well as at Ft. Worth and Galveston with a short trip on the Gulf.

In September, 1909, with my wife, I made a trip down the St. Lawrence River from Toronto to Quebec. There I had the great pleasure of visiting my old correspondent Sir James M. LeMoine then in his 85th year. He was noted for his ornithological writings from 1859 to 1877, and the six editions of the well known work "Maple Leaves," published from 1863 to 1894. He was knighted by the Queen for his historical knowledge and writings. In February, 1872, there was a noteworthy incursion of the willow ptarmigan from the Saguenay region to Lake St. John northwest of Quebec. LeMoine wrote me of the hundreds which were sent to the Quebec markets and sent me several pair, in the flesh, which I made into skins. His home was "Spencer Grange." The former occupant of the place entertained John James Audubon when he visited Quebec in 1842 and one of the paths in the garden had been named "Audubon Avenue." He had a small museum next to his home containing many odds and ends, from

mounted birds to antique walking sticks. His failing health and eyesight prevented further correspondence. My last few lines from him were under date of October 29, 1910, and he died on February 5, 1912.

After leaving New England the trout fishing which I had enjoyed so much in Maine came to an end for many years, but in 1912 I was invited to a fishing lodge on the north branch of the AuSable River in Michigan. Since that date I have only lost one season of that delightful sport in eighteen years. For many years I was a member of the English Lake Shooting and Fishing Club in Indiana which controlled several thousand acres of Kankakee marshes, one of the finest locations in the west for ducks in the spring and fall migrations. The ditching and draining by the State outside the property drained the marshes, and the property was sold for farming purposes.

In the winter of 1912, I made a trip to Cuba with a small party from Chicago. At Las Tunas some 500 miles east of Havana we spent a most enjoyable ten days on a large grapefruit plantation of 40,000 trees. Since it was my first trip to the tropics everything was novel to me. This was not a collecting trip though I saw a good many birds of much interest. With a gun borrowed from a native and some coarse shot, I got two specimens of the beautiful Cuban trogan and one of the Cuban barn owl. The ani was of course abundant; I took a snapshot photo of one on a grapefruit tree. In traveling to Cuba, we went over that wonderful railroad running from the Florida mainland to Key West over the sea, a distance of 107 miles, in the first train to make the crossing on January 22, 1912.

The Ridgway Ornithological Club of Chicago was organized September 6, 1883, and incorporated April 21, 1884. The first officers were Dr. J. W. Velie, President, G. Frean Morcom, Vice-President and Treasurer, H. K. Coale, Secretary. There were sixteen active members, one honorary member and twenty-nine corresponding members. The Club published two bulletins, in 1883 and 1887. The first was a list of the bird migration in the Mississippi Valley by Dr. W. W. Cooke and Otto Widmann; the second consisted of eight papers by Ridgway, Toppan, Coale, Morcom, Gault, and others. A large cabinet was installed for a collection of skins to be donated by the members. There was also an attempt made to collect a small library. The first meetings were held in the temporary rooms of the Chicago Academy of Sciences on Wabash Avenue and later in a basement room of a building at 175 Dearborn Street. For various reasons the activities of the Club grew less and less till it was abandoned by vote of members.

On April 1, 1897, the Illinois Audubon Society was organized, the fourth of the State societies. For sixteen years I acted as President and then resigned that it might be conducted by younger and more efficient hands.

For many years I have been deeply interested in the life and writings of John J. Audubon. In 1876 I met Miss Maria R. Audubon, one of the granddaughters, thus beginning an enduring friendship. I have been fortunate in accumulating letters and manuscripts of the great painter-naturalist, and books that were in his personal library (some were presentation copies from the authors), and most of his life's histories that have been published. I have visited the Audubon home in Salem, New York, and have seen many of the relics which Audubon brought back from his Missouri River trip in 1843. All these have been a constant interest. Miss Audubon died December 22, 1925, in her eighty-second year. In one of the last letters she was able to write me, she said, "Did you ever know that we had corresponded just fifty years!"

For fifty years I have been interested in gathering a collection of the likenesses of ornithologists and bird lovers in this country and Europe, and they now represent about 1200. In 1910 I became interested in forming a collection of bookplates which has proved a delightful occupation as well as a most educational one, and has resulted in the forming of many worthwhile friendships. The collection now represents about 11,000. My brother Walter Deane who died July 30, 1930, also had a bent for collecting; he was a botanist of note, and left to the Harvard College Herbarium a collection of 40,000 pressed plants largely prepared by himself.

It is always a pleasure and satisfaction to me to recall my contacts with the ornithologists whom I have known but whom I have outlived. Some of them I had only seen on occasions, but many were my intimate and beloved friends for years. Among these I may mention Prof. Spencer F. Baird, William Brewster, Dr. Elliot Coues, Dr. Robert Ridgway, Dr. Joel Asaph Allen, Dr. T. M. Brewer, William Dutcher, Capt. Charles E. Bendire, Dr. Daniel Girard Elliot, Henry W. Henshaw, Dr. J. M. Wheaton, Dr. J. C. Merrill, Dr. Edgar A. Mearns, Henry A. Purdie, George B. Sennett, Charles B. Cory, Nathaniel S. Goss, Dr. Theodore N. Gill, Bradford Torrey, Frank F. Daggett, George A. Boardman, Dr. W. B. Barrows, and many others.

Of the several ornithological societies and clubs with which it has been my pleasure to have been associated, our little Kennicott Club is one that I shall always remember with the greatest satisfaction. While we are young we are well on our feet and the interest increases at every meeting. Our personnel, our informality, and our enthusiasm are all that could be desired, and it is certainly an inspiration to conduct our meetings in the oldest Academy of Sciences in the State of Illinois. All this has been largely brought about by its Director [Alfred M. Bailey] who is an ornithologist, an able observer and collector, an author, lecturer and expert photographer of wild life.

MUSEUM ACTIVITIES

Recent Improvements

Since the appearance of the first number of *The Chicago Naturalist,* the west facade of the Museum building, darkened by many years' accumulation of soot, has been cleaned by sand-blasting. New signs bearing the name of the institution and listing museum hours have been set in front of the building near the Clark Street entrance and at the rear near Stockton Drive in the Park. Elegantly lettered in two-tone gold on a black background and under plate glass in a weather-proof frame, these signs add much to the beauty and dignity of the building and its surroundings.

A new asphalt asbestos tile floor covering has been installed in the public office and children's library. Plans are being made for rearranging and redecorating the main lobby of the museum this fall. New floor covering and the substitution of new exhibit cases for those now in use are contemplated.

New Members

New members recently elected are as follows:

Life

Dr. Charles A. Shull

Sustaining

Mrs. H. B. Horton
Mrs. Charles A. Street
Mrs. Daniel Peterkin
Mrs. Henry C. Hanley
Mrs. Bertha E. Jaques
Solomon P. Roderick
Jeffery R. Short
William Backrock
Samuel Campbell
A. S. Windsor
Paul A. Florian
Dr. Marshall D. Molay

Associate

Mrs. G. C. Phipps
Mrs. Francis R. Dickinson
Miss Margaret M. Dargon
Miss Gem A. Tyler
Miss Margaret Dreesen
Dr. Beals E. L. French
Harry Rich
Clarence R. Smith
L. Philip Denoyer
Herbert Sigler
M. C. Stowe
Richard Kostka
Adam J. Schubel
Alfred Mendendorf
I. P. Daniel
Erwin O. Freund
W. A. Gray

The first number of *The Chicago Naturalist* has been very favorably received, not only in the Chicago Area but in many distant parts of the country. The Director and members of the staff appreciate the encouragement and support of members and friends of the Academy who have contributed in various ways toward its potential success.

Field Work

Earl and Thurston Wright, Donald Lowrie and Walter Necker have carried on spring and summer field work in the Chicago Region, chiefly for the purpose of obtaining accessories and

photographs for exhibits now in preparation. A considerable number of specimens were also added to the vertebrate study collections.

Edwin V. Komarek, formerly of the Academy staff, continues to send specimens of mammals, amphibians and reptiles from Georgia and Florida.

Dr. Gloyd spent four days in the field with Philip D. Evans in extreme southeastern Missouri during the week of May 29. Because of abundant rainfall in that area the amphibians and reptiles were widely scattered instead of concentrated in the vicinity of the ponds, swamps and bayous as is often the case in dry weather. By collecting in upland areas during the day and in the swamps at night a fairly good representation of the reptile fauna of that region was obtained.

Notes from Affiliated Societies

The State Microscopical Society of Illinois, an affiliate of the Academy, has been bringing renewed activity to our lecture hall. On May 12 a sound motion picture, *Celite, the Story of the Diatom,* was shown, depicting these intricate little plants and the myriad of technological uses to which the diatomaceous earth is being put by modern research.

Herbert J. Walters, Examiner of Questioned Documents, talked to the group on June 9, explaining the uses of the microscope in the phase of crime detection on which he is one of the foremost authorities. He considered in particular the facts of the Hauptman trial (Lindbergh Case), illustrating his talk with photographs of the actual exhibits.

At the annual business meeting of the Society, June 30, the following officers were elected:

President ..... H. J. Lalley
First Vice-President ..... J. E. Nielsen
Second Vice-President N. S. Amstutz
Treasurer ..... Charles A. Ruhl
Secretary ..... Lucy Nielsen
Corresponding Secretary ..... Dr. V. A. Latham
Curator ..... Walter L. Necker

Several field trips are scheduled for the summer meetings, and regular programs will be resumed early in the fall.

Miss Ethladel Royce left the employ of the Academy on June 15 and is spending the summer at home in Escanaba, Michigan. Her engagement to Mr. Fred Magnus of Chicago was recently announced.

Miss Elizabeth Lane, a graduate of Northwestern University formerly employed in the First National Bank, has accepted the position of secretary to the Director.

Donald C. Lowrie of the museum staff has been given a six-weeks' leave of absence to serve as instructor in entomology at the Geneva Lake Summer School of Natural Science at Williams Bay, Wisconsin.

Walter L. Necker, herpetologist and acting librarian of the Academy, is attending the meetings of the American Society of Ichthyologists and Herpetologists at Berkeley, California, July 19-21. He will also visit museums and libraries on the West Coast.

Dr. Gloyd gave two lectures on reptiles at The School in the Dunes for Nature Study held at Dune Acres June 19-25 under the direction of The Friends of Our Native Landscape.

Among recent distinguished visitors at the Academy were H. H. Bailey, ornithologist of Miami, Florida; Mr. M. Graham Netting, curator of reptiles of the Carnegie Museum, Pittsburgh, and Mrs. Netting, en route to Berkeley, California, to attend the meetings of the American Society of Ichthyologists and Herpetologists, of which Mr. Netting is secretary; Clifford H. Pope, of Chatham, New Jersey, author of recent books on herpetology; and Wilbur Doudna, of the U. S. National Park Service, Death Valley, California.

Dr. Smith Receives the Bacon Scholarship

Dr. Hobart M. Smith, who has been engaged in herpetological research at the Academy during the past winter has received the Walter Rathbone Bacon Scholarship of the Smithsonian Institution for a period of two years. This scholarship is granted occasionally to men of proven ability for the purpose of carrying on field investigations in foreign lands. Dr. Smith will continue his studies on the amphibians and reptiles of Mexico, spending approximately two-thirds of the time in the field and the remainder in the U. S. National Museum. He will start for Mexico about September 1. Before coming to Chicago last fall Dr. Smith held a National Research Fellowship at the University of Michigan.

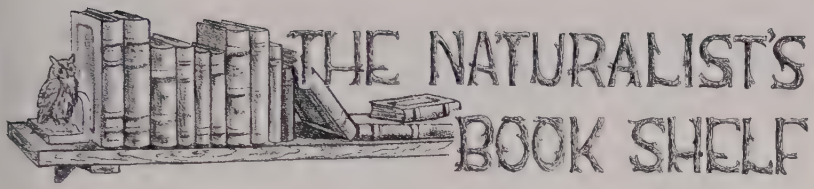
The Calendar of Events

The Naturalist's Calendar of Events is omitted in this issue since the activities listed are not numerous during the summer months. This department will reappear in the fall number of the Naturalist. Representatives of organizations devoted to the various phases of natural history in the Chicago Area are urged to send announcements to the Editor as soon as their fall and winter programs have been arranged.

Academy Members Please Note

If you have changed your address recently, or if you contemplate doing so in the near future, please notify the Academy office so that *The Chicago Naturalist* and other communications may reach you without delay. Remember that only first class mail is forwarded promptly.

ORPHEUS MOYER SCHANTZ, author of *Our Friends the Trees* in this issue, is by avocation a naturalist, self-taught. He was born in Bruce County, Ontario, in 1864. Widely known as an author of popular nature articles, nature poetry, and lectures on wild life, he was for fifteen years President of the Illinois Audubon Society and he has been a director of the Geographic Society of Chicago since 1912. He is also a member of the Board of Scientific Governors of the Academy. Since 1918 he has made thirty-four visits to the Great Smoky Mountains (in which the accompanying photograph was taken) and, during recent years, has conducted special tours of that area, thus helping hundreds of others to enjoy and appreciate the natural beauties of that delightful region.



A Naturalist's Chicagoana—The Dune Country

Walter L. Necker

There may be no Walden and no Slabsides in the Chicago Region, but the praises of our local area have been equally well sung by many authors, although admittedly in smaller editions. Just as the tramping grounds of Thoreau and Burroughs are more charming in the light of their essays, so are the Dunes in the light of their literature—and it is an immense literature. Hundreds of scientific articles have been written about this unparalleled country, and even the scientific jargon with its formality and coldness has still, generally, conveyed the delight of the researcher in this region. We are not interested in the technical works this time, but in a half-dozen popular books by "heart-naturalists" of the Indiana Dunes.

The dissimilarity of treatment by the various authors is surprising, and yet understandable for the diversity of the Dune Country is tremendous. Historian, artist, naturalist—all find ample to admire in this "nature wonderland."

The first few books that were written were undoubtedly stimulated by the move to make a National Park out of the area from the eastern limit of Gary to beyond the present State Park. E. Stillman Bailey in *The Sand Dunes of Indiana* first wrote of the "lure of the Dunes," and presents the everlasting freshness and changing moods of the Dune Country. He also discusses the formation of dunes, and describes the entire country. Mr. Bailey carried his camera faithfully to the Dunes on innumerable hikes, and his book is filled with excellent pictures.

George Brennan, late historian of Chicago, emphasized the early history of this country in *The Wonders of the Dunes,* but neglects in no way the personal charm of the "desert." Anecdotes and stories were an integral part of George Brennan, and are not left out of the book.

Joseph Lane Hancock's *Nature Sketches in Temperate America,* although largely from notes made in Lakeside, Michigan, still belongs among our Dune books. It is an unusual book, an informative and interesting book—a book which should be read by everyone who wants

to know what there is of interest beside sand and sand and sand in the Dune Country—but we are not writing for that audience. Even those who know and love the Dunes, however, will get many new slants and find even more pleasure in their frequent outings if they develop Mr. Hancock's "seeing eye" and learn to interpret nature's secrets—and the first step in that direction might be the reading of Mr. Hancock's book. It is full of delightful original observations interpreted in the light of modern ecology—but very readable.

Sam Harper needs no introduction to the Dunes hiker. His *Hoosier Tramp* sings of the joy of the trail and you can almost hear and see him "skip and sing for joy" as Hazlitt says is the proper way for a walking tour. The spirit of the wanderer is nowhere better shown than in this little Prairie Club duodecimo.

Earl Reed, master etcher, also finds the secret of the Dunes, not only with the needle but with the pen as well. He depicts characters —outcasts in some ways—who lived in little driftwood shacks and got their meagre living from the country. Such things are now practically gone from the Dunes, but even to one who has known the Dune Country for only fourteen years, they bring back memories and give added enjoyment to the next tramp. Old Sipes and the Baptist minister with plug hat, preaching fire and brimstone; charming Indian legends, and descriptions of the seasons in the Dunes, not to mention the inimitable etchings, make his two royal octavos, *The Dune Country* and *Sketches in Duneland,* the ideal books for a reminiscing evening by the fireplace. *Voices of the Dunes,* a folio, composed of etchings, and only a few pages of text, finishes Reed's trilogy of the Dunes.

All these books are intensely readable, and will surely increase your enjoyment of the Dunes if you already frequent them; if you are not already "in the Dune habit," glance through several of these books—pick one up and read it, and you will join the legion who find real recreation in this wonderland.

Bailey, E. Stillman
1917. The sand dunes of Indiana. Chicago, McClurg, 165 pages.
Brennan, George A.
1923. The wonders of the dunes. Indianapolis, Bobbs-Merrill, 326 pages.
Hancock, Joseph Lane
1911. Nature sketches in temperate America. Chicago, McClurg, 451 pages.
Harper, Samuel A.
1928. A Hoosier tramp. Chicago, Prairie Club, 151 pages.
Reed, Earl
1916. The dune country. John Lane, 288 pages.
1918. Sketches in Duneland. John Lane, 287 pages.

NOTES FROM THE FIELD

Notes on the Behavior of the Nighthawk

During the summer of 1937 opportunities for observing the behavior of the nighthawk *(Chordeiles minor)* were afforded at the University of Michigan Biological Station on Douglas Lake just a few miles south of the Straits of Mackinac. The forests of this region have been burned over many times and the vegetation now consists of second growth timber with an abundance of aspens, blueberries, and the bracken fern which is one of the most characteristic plants of the area.

The nighthawk is one of the most conspicuous birds of the region and many can be seen in the air each evening during the nesting season. The peculiar booming flight is especially noticeable. While typically a mating performance, it seems sometimes to be merely an expression of irrepressible exuberance of spirits; it continues from the time of the birds' arrival until their departure in the fall. During the last few weeks of their sojourn in the north woods, however, it is less frequently seen.

Before booming, the bird usually mounts to a considerable height then suddenly tilts its body downward and drops rapidly with partially closed wings. The booming sound is heard when it spreads its wings and levels off at the end of the plunge and is probably due to the rapid passage of air through the primaries. The angle of this spectacular dive varies from nearly vertical to about 30° from the horizontal. Both sexes indulge in booming, although the males appear to take part most frequently. Occasionally, but only rarely, the booming does not accompany the plunge and sometimes it is produced without diving. One bird was observed, while pursuing another, to boom by merely veering laterally in its flight.

Photograph by Earl G. Wright

Breeding birds were decidedly abundant, but our observations were largely confined to two pairs, the eggs of which were located in a stand of open aspen on the 2nd and 7th of July. In neither case was there any semblance of a nest. The eggs were laid directly on the sand or thin litter. In each nest-site there were two partially incubated eggs with noticeable variation in size and shape in each pair.

A small canvas blind was erected near each nest-site and soon after the eggs hatched, a cheesecloth fence was built to confine the young birds for study. Observations were made at all hours of the day and night throughout most of July, a kerosene lantern being used on the darker nights.

Incubation seemed to be carried on entirely by the female which may be distinguished from the male by the lack of white patches in the tail and by an ochraceous buff throat which usually replaces the white throat patch of

the male. The female of one pair, however, proved an exception to the general rule in having a small white throat patch. In few other bird species is protective coloration better exemplified. Breeding nighthawks so closely resemble their surroundings that they seem to be a part of the inanimate forest litter. This is true of eggs and young birds as well and they can be located only with difficulty even when one knows almost exactly where to look. Often a female attempted to distract attention from the nest when flushed. The most frequent type of flight was intermediate between that of feigned injury and normal flight. With tail down and a slow feeble wing beat she flew low over the ground to a distance of about seventy-five feet, then opened her mouth widely, uttering hoarse complaining notes. But when the eggs were pipped, and after the first young had hatched, these flights became shorter, the female then often landing within twenty-five feet where, opening her cavernous mouth to its full extent and beating her wings against the ground, she emitted catlike hissing sounds.

During the hatching period the male usually boomed several times shortly after sunset. This was followed by short flights over the nest-site during which the typical "peent" notes were heard. He then usually perched on his favorite limb nearby and gave purring notes characteristic of feeding time. These notes were apparently produced by air moving to an air sac in the throat which was then inflated. Shortly afterward both adults left to feed.

The hatching of eggs was not observed but they were partially incubated when first discovered and hatched less than twelve days later. Pipping took place from one and one-half to two days before hatching. The egg shells were carried from three to ten feet away from the nest-site by one of the adults. If the young birds are blind when hatched, their eyes open within a few hours afterward for all chicks had their eyes open when first observed.

When two days old they were ready to move. Alighting within a few feet of the young, the female incited this movement by shifting her weight from one foot to the other, uttering soft clucking notes, and persuading them to go to her.

Although brooding the eggs and young appeared to be left entirely to the female, feeding is divided about equally between both parents. One bird, however, might do much more than his share on any one day. When feeding the young bird firmly grasped the bill of the adult and, with vigorous movements of the parent's head, food was regurgitated. During the hour and one-half preceding sunrise and following sunset, daily feeding took place. At other times, except on warm days when they often sat in the open, the females brooded the young. On excessively hot days panting seemed partially to offset the effect of the heat.

When three days old the young of one pair met with an unknown accident. Two feathers from a goshawk and one from a horned owl were found at the nest-site. On the following day the parents returned but seemed quite unable to comprehend the absence of the young. At the other nest only one of the eggs hatched. This bird survived for eleven days when it disappeared.

Donald P. Duncan
and Harold A. Mathiak,
University of Michigan.

Behavior of a King Rail

Do all king rails vigorously resent inspection of their nests? On May 29 near Mundelein, Illinois, I discovered a nest of this species in a small cat-tail hollow not over an acre in area and surrounded by ploughed land. The marshy area was nowhere more than ankle-deep in water. The nest, containing twelve eggs, lay in the center of a cluster of dead and broken cat-tail stalks about a foot from the ground.

(Continued on page 68)

TRAILSIDE MUSEUM

Maintained in Thatcher Woods by
The Forest Preserve District of Cook County
in cooperation with The Chicago Academy of Sciences

The Trailside Museum's exhibit of living reptiles attracts many visitors.

In spite of weather which discouraged outdoor rambles this spring, the attendance at the Trailside Museum has been remarkably good. Rain and low temperatures interfered with field work and dampness retarded other activities at the museum. The woods were less attractive than usual because of muddy paths, abundant mosquitoes, and the destruction of foliage by insects. Canker worms, in one of the worst incursions on record, stripped many of the trees of their leaves. Hackberries, hawthornes and elms suffered the worst damage but boxelders, mulberries, ashes, oaks and maples were also attacked. Some of the trees put out a second set of leaves only to have them nipped by late frosts. Recovery was rapid, however, and even the young trees are again in full leaf.

During the last week of June floods sent the Des Plaines River out of its banks, flooding much of Thatcher Woods. The lowlands were as much as twelve or fifteen feet under water and, on July 2, the water rose eight or ten feet in about eight hours. Little damage seems to have been done but many small mammals were sent scurrying to new homes on higher ground.

A new reptile chart has been completed by Gordon Pearsall, curator of the museum, and will be placed on exhibit as soon as the frame is completed. Painted in natural colors from living specimens, it shows nine species of local turtles and three species of local

A new chart of turtles and lizards has been completed recently by Mr. Pearsall.

lizards, and is similar in style to the chart of local snakes finished some months ago. Mr. Pearsall is now preparing a chart of the more common poisonous snakes of the United States.

The exhibit showing interdependence of animal and plant life is being rebuilt. Through the courtesy of C. Blair Coursen of the General Biological Supply House, some beautifully prepared representatives of the principal phyla of the plant and animal kingdoms have been secured.

Bertrand Wright is again with the museum and will aid in developing the exhibits during the summer. Mr. Wright, for three years assistant to Mr. Pearsall, attended the University of Illinois last winter and received the degree of Bachelor of Science from that institution in June. He expects to return to Urbana for graduate work this fall.

The new reptile cages made for the museum by the Forest Preserve District last spring now house many species of local reptiles including fox snakes, hog-nosed snakes, garter snakes, water snakes, grass snakes, and De Kay's snakes, as well as a copperhead and three water moccasins, poisonous snakes not found in this area.

A new aquarium is the home of eight species of local turtles. Other recently acquired exhibits include several species of birds. A Florida gallinule was picked up at Crawford Avenue and Roosevelt Road in the heart of the city and occasioned considerable speculation when it was brought to the museum, for it is a bird of the secluded marshes. After keeping the gallinule three days to be certain that no injury had occurred, it was placed in the new flying cage at the Lincoln Park Zoo. A family of orphaned baby gray squirrels was brought in several weeks ago. At first fed with a medicine dropper and later given bread and milk, they now eat almost everything. Now big enough to care for themselves, they will be liberated shortly. Like most of Trailside's live exhibits they have become quite tame. The most recent acquisition is a pair of young raccoons. Walked around on a leash like dogs, they are fast becoming as popular with the youngsters as "Woody," the woodchuck who has been the Museum's pet for many months. Several bats have been received, among them a family group of red bats consisting of a very large mother with three young which are to be mounted and placed in the mammal case.

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When flushed, the bird left "in a hurry," protesting raucously and, after retreating a few yards into the marsh grass, came into the open and ran toward me with wings outspread and drooping. Still screaming, she stopped about five feet away, but continued to follow me for thirty or forty feet, now rushing in as if to attack, now feigning a broken wing.

From past experience I had gained the impression that both the sora and the king rail were timid and that, when flushed from the nest, they were content to skulk in the undergrowth and make vocal protests only.

—F. R. Dickinson.

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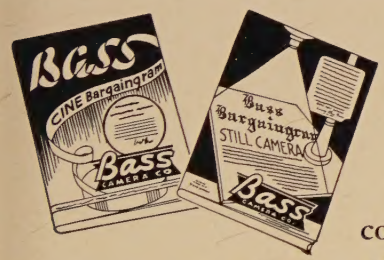
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